

What is claimed is:

1. A load driving apparatus comprising:

a power source applying a power supply voltage;

a load circuit to which the power supply voltage is supplied from the

5 power source, and driving;

a relay circuit electrically connecting the power source to the load circuit on the basis of a switching operation;

a first switching device driving the relay circuit so as to execute the switching operation;

10 a second switching device having one end connected to the power source and another end connected to the load circuit, and supplying the power supply voltage to the load circuit; and

a controller outputting a control signal to the second switching device so as to supply the power supply voltage to the load circuit and thereafter outputting a control signal to the first switching device so as to electrically connect the relay circuit to the power source, thereby starting driving the load circuit.

2. A load driving apparatus according to claim 1, wherein

20 the controller outputs the control signal to the first switching device so as to cancel the electric connection between the relay circuit and the power source at a time of stopping driving the load circuit after starting driving the load circuit, and thereafter outputs the control signal to the second switching device so as to stop supplying the power to the load circuit.

3. A load driving apparatus according to claim 1, further comprising a timer counting a predetermined time, wherein

25 the controller supplies the power supply voltage to the load circuit, electrically connects the relay circuit to the power source after the

predetermined time counted by the timer elapses, cancels the electric connection between the relay circuit and the power source, and stops supplying the power to the load circuit after the predetermined time counted by the timer elapses.

5 4. A load driving apparatus according to claim 1, the controller having a voltage monitor monitoring a voltage applied to the second switching device, wherein

the controller supplies a power supply voltage to the load circuit and electrically connects the relay circuit to the power source after it is judged that
10 the voltage monitored by the voltage monitor becomes greater than a predetermined value.

5. A load driving apparatus according to claim 1, further comprising:
a rising edge detecting timer circuit inputting an on signal from the controller and outputting an off signal for a predetermined time;

15 an AND circuit to which a control signal from the controller and an output signal from the rising edge detecting timer circuit are input;

a falling edge detecting timer circuit outputting an off signal for a predetermined time; and

20 a NAND circuit to which the control signal from the controller and an output signal from the falling edge detecting timer circuit are input, wherein

the first switching device switches the relay circuit in response to an output signal from the AND circuit, and the second switching device applies a power supply voltage to the relay circuit in response to an output signal from the NAND circuit.

25 6. A method of driving a load circuit in a load driving apparatus comprising:

a power source applying a power supply voltage;

a load circuit to which the power supply voltage is supplied from the power source, and driving;

a relay circuit electrically connecting the power source to the load circuit on the basis of a switching operation;

5 a first switching device driving the relay circuit so as to execute the switching operation; and

a second switching device having one end connected to the power source and another end connected to the load circuit, and supplying the power supply voltage to the load circuit, comprising the steps of:

10 outputting a control signal to the second switching device so as to supply the power supply voltage to the load circuit;

outputting a control signal to the first switching device so as to electrically connect the relay circuit to the power source; and

starting driving the load circuit on the basis of the two steps.

15 7. A method of driving a load circuit according to claim 6, wherein the method comprises a step of outputting the control signal to the first switching device so as to cancel the electric connection between the relay circuit and the power source at a time of stopping driving the load circuit after the step of starting driving the load circuit, and a step of outputting the control signal to the second switching device so as to stop supplying the power to the load circuit after the step of canceling the electric connection.

8. A method of driving a load circuit according to claim 6, the load driving apparatus being provided with a timer counting a predetermined time, wherein

25 the method comprises a step of supplying the power supply voltage to the load circuit, a step of electrically connecting the relay circuit to the power source after the predetermined time counted by the timer elapses, and a step of

canceling the electric connection between the relay circuit and the power source, and stopping supplying the power to the load circuit after the predetermined time counted by the timer elapses.

9. A method of driving a load circuit according to claim 6, the load

5 driving apparatus being provided with a voltage monitor monitoring a voltage applied to the second switching device, wherein

the method comprises a step of supplying a power supply voltage to the load circuit so as to judge that the voltage monitored by the voltage monitor becomes greater than a predetermined value, and a step of electrically
10 connecting the relay circuit to the power source after the judging step.